

CLAIMS

1. A probe for a scanning probe microscope, comprising:
  - (a) a base of the probe for the probe microscope;
  - (b) a support cantilever extending horizontally from the base; and
  - (c) a measuring cantilever provided on the top end of the support cantilever, the measuring cantilever having a length less than or equal to 20 micrometers and a thickness less than or equal to 1 micrometer.
2. The probe for a scanning probe microscope according to Claim 1, wherein the base and the support cantilever are formed from single-crystal silicon and the measuring cantilever is formed from a single-crystal silicon thin film, and wherein the measuring cantilever is coupled with the top end of the support cantilever.
3. The probe for a scanning probe microscope according to Claim 1, wherein the top end of the support cantilever is processed to have a sloped surface so as not to prevent the measuring cantilever from being optically observed.
4. The probe for a scanning probe microscope according to Claim 1, wherein the length of the measuring cantilever is precisely defined by reducing the thickness of the measuring

cantilever to less than the thickness of a coupling portion between the measuring cantilever and the support cantilever.

5. The probe for a scanning probe microscope according to Claim 1, wherein the length of the measuring cantilever is precisely defined by reducing the width of the measuring cantilever to less than the width of a coupling portion between the measuring cantilever and the support cantilever.

6. A method for fabricating the probe for a scanning probe microscope according to Claim 2, comprising the steps of:

fabricating the base and the support cantilever by processing a single-crystal silicon substrate;

fabricating the measuring cantilever by processing a single-crystal silicon thin film of an SOI substrate different from the single-crystal silicon substrate;

bonding the measuring cantilever with the support cantilever; and

removing a handling wafer and a buried oxide film of the SOI substrate.

7. The method for fabricating the probe for a scanning probe microscope according to Claim 6, further comprising the step of:

forming a probe tip on the top end of the measuring cantilever by means of wet etching.